

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L32	1	(overlapp\$3 same (polygon or primitive) same (intensit\$3 or brightness or luminance) same pixel same image and (mesh or model)).CLM.	US-PGPUB	OR	ON	2007/05/03 10:13
L30	1	(overlapp\$3 same (polygon or primitive) same (intensit\$3 or brightness or luminance) same pixel same image).CLM.	US-PGPUB	OR	ON	2007/05/03 10:13

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L11	13	L10 and textur\$3 and (polygon or primitive)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 13:10
L10	114	345/589.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 13:10
L9	1439	345/589.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/05/03 13:10

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L8	28	("5867166").PN. OR ("6057850").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/05/03 13:03
L3	24	("5022085" "5155586" "5185808" "5231385" "5251022" "5325449" "5398079" "5488674" "5581377" "5611000" "5630037" "5649032" "5745121" "5815645" "5838837" "5852683" "5982941" "5982951" "6075905" "6128108").PN. OR ("6385349").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2007/05/03 13:02
S100	10	345/427.ccls. and (textur\$3 same extract\$3 same polygon)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:15
S99	9	345/427.ccls. and (textur\$3 same compar\$4 same polygon)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:15
S72	10	345/420.ccls. and (textur\$3 same compar\$4 same polygon)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:15
S70	26	345/419.ccls. and (textur\$3 same extract\$3 same polygon)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:15
S95	1	345/582.ccls. and (overlapp\$3 same (polygon or primitive) same (intensit\$3 or brightness or luminance) same pixel)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:12
S94	1	345/581.ccls. and (overlapp\$3 same (polygon or primitive) same (intensit\$3 or brightness or luminance) same pixel)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:10
S93	1	345/419.ccls. and (overlapp\$3 same (polygon or primitive) same (intensit\$3 or brightness or luminance) same pixel)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:10

EAST Search History

S92	0	345/420.ccls. and (overlapp\$3 same (polygon or primitive) same (intensit\$3 or brightness or luminance) same pixel)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:10
S91	1	345/629.ccls. and (overlapp\$3 same (polygon or primitive) same (intensit\$3 or brightness or luminance) same pixel)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:10
S89	39	345/629.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:09
S90	124	345/586.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/05/03 10:08
S88	36	345/582.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:08
S7	105	345/586.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/05/03 10:08
S65	37	345/629.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:07
S24	33	345/582.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 10:07
S85	32	345/581.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58
S83	35	345/419.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean) same pixel)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58

EAST Search History

S82	21	345/420.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58
S80	1	S79 and (mean or averag\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58
S79	8	345/420.ccls. and (textur\$3 same extract\$3 same polygon)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58
S77	4	S72 and (mean or averag\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58
S76	14	S70 and (mean or averag\$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58
S74	31	345/419.ccls. and (textur\$3 same compar\$4 same polygon)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58
S69	8	345/420.ccls. and (textur\$3 same extract\$3 same polygon)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:58
S86	542	"345"/\$.ccls. and (pixel and ((brightness or intensit\$3) near7 (formula or equation)))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:57
S23	25	345/581.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:57
S19	14	345/420.ccls. and ((intensit\$3 or brightness) near7 (averag\$3 or mean))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:56

EAST Search History

S14	14	\$10 and (mean or averag\$3)	US-PCPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:56
S8	8	345/420.ccls. and (textur\$3 same extract\$3 same polygon)	US-PCPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/05/03 09:56
S68	14	chen-chia-chen.in.	US-PCPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/05/03 09:55
S67	2	chou-hong-long.in.	US-PCPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/05/03 09:55
S35	13	chen-chia-chen.in.	US-PCPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/05/03 09:55
S34	1	chou-hong-long.in.	US-PCPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/05/03 09:55

Terms used

[overlap](#) [brightness](#) [mesh](#) [vertex](#) [equation](#) [polygon](#) [primitive](#)

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Relevance scale 



1 [Point-based computer graphics](#)

 Marc Alexa, Markus Gross, Mark Pauly, Hanspeter Pfister, Marc Stamminger, Matthias Zwicker

August 2004 **ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04**

Publisher: ACM Press

Full text available:  [pdf\(8.94 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#)

This course introduces points as a powerful and versatile graphics primitive. Speakers present their latest concepts for the acquisition, representation, modeling, processing, and rendering of point sampled geometry along with applications and research directions. We describe algorithms and discuss current problems and limitations, covering important aspects of point based graphics.



2 [Spatial augmented reality: Modern approaches to augmented reality](#)

 Oliver Bimber, Ramesh Raskar

July 2006 **ACM SIGGRAPH 2006 Courses SIGGRAPH '06**

Publisher: ACM Press

Full text available:  [pdf\(2.45 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#)

This tutorial discusses the Spatial Augmented Reality (SAR) concept, its advantages and limitations. It will present examples of state-of-the-art display configurations, appropriate real-time rendering techniques, details about hardware and software implementations, and current areas of application. Specifically, it will describe techniques for optical combination using single/multiple spatially aligned mirror-beam splitters, image sources, transparent screens and optical holograms. Furthermore, ...



3 [Spatial augmented reality: a modern approach to augmented reality: Modern approaches to augmented reality](#)

 Oliver Bimber, Ramesh Raskar

July 2005 **ACM SIGGRAPH 2005 Courses SIGGRAPH '05**

Publisher: ACM Press

Full text available:  [pdf\(48.93 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This tutorial discusses the Spatial Augmented Reality (SAR) concept, its advantages and limitations. It will present examples of state-of-the-art display configurations, appropriate real-time rendering techniques, details about hardware and software implementations, and current areas of application. Specifically, it will describe techniques for optical

combination using single/multiple spatially aligned mirror-beam splitters, image sources, transparent screens and optical holograms. Furthermore, ...

4 Level set and PDE methods for computer graphics

 David Breen, Ron Fedkiw, Ken Museth, Stanley Osher, Guillermo Sapiro, Ross Whitaker
August 2004 ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04

Publisher: ACM Press

Full text available: [pdf\(17.07 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#)

Level set methods, an important class of partial differential equation (PDE) methods, define dynamic surfaces implicitly as the level set (iso-surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using partial differential equations to solve problems in computer graphics, geometric modeling and computer vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set eq ...

5 Projectors: advanced graphics and vision techniques

 Ramesh Raskar
August 2004 ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04

Publisher: ACM Press

Full text available: [pdf\(6.53 MB\)](#) Additional Information: [full citation](#)

6 Real-time volume graphics

 Klaus Engel, Markus Hadwiger, Joe M. Kniss, Aaron E. Lefohn, Christof Rezk Salama, Daniel Weiskopf
August 2004 ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04

Publisher: ACM Press

Full text available: [pdf\(7.63 MB\)](#) Additional Information: [full citation](#), [abstract](#)

The tremendous evolution of programmable graphics hardware has made high-quality real-time volume graphics a reality. In addition to the traditional application of rendering volume data in scientific visualization, the interest in applying these techniques for real-time rendering of atmospheric phenomena and participating media such as fire, smoke, and clouds is growing rapidly. This course covers both applications in scientific visualization, e.g., medical volume data, and real-time rendering, ...

7 GPGPU: general purpose computation on graphics hardware

 David Luebke, Mark Harris, Jens Krüger, Tim Purcell, Naga Govindaraju, Ian Buck, Cliff Woolley, Aaron Lefohn
August 2004 ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04

Publisher: ACM Press

Full text available: [pdf\(63.03 MB\)](#) Additional Information: [full citation](#), [abstract](#), [citations](#)

The graphics processor (GPU) on today's commodity video cards has evolved into an extremely powerful and flexible processor. The latest graphics architectures provide tremendous memory bandwidth and computational horsepower, with fully programmable vertex and pixel processing units that support vector operations up to full IEEE floating point precision. High level languages have emerged for graphics hardware, making this computational power accessible. Architecturally, GPUs are highly parallel s ...

8 Texture mapping 3D models of real world objects

 Frederick M. Weinhaus, Venkat Devarajan
December 1997 ACM Computing Surveys (CSUR), Volume 29 Issue 4

Publisher: ACM Press

Full text available:  pdf(1.98 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

Texture mapping has become a popular tool in the computer graphics industry in the last few years because it is an easy way to achieve a high degree of realism in computer-generated imagery with very little effort. Over the last decade, texture-mapping techniques have advanced to the point where it is possible to generate real-time perspective simulations of real-world areas by texture mapping every object surface with texture from photographic images of these real-world areas. The technique ...

Keywords: anti-aliasing, height field, homogeneous coordinates, image perspective transformation, image warping, multiresolution data, perspective projection, polygons, ray tracing, real-time scene generation, rectification, registration, texture mapping, visual simulators, voxels

9 Status report of the graphic standards planning committee 

 Computer Graphics staff

August 1979 **ACM SIGGRAPH Computer Graphics**, Volume 13 Issue 3

Publisher: ACM Press

Full text available:  pdf(15.01 MB) Additional Information: [full citation](#), [references](#), [citations](#)

10 Non-photorealistc rendering: Fast primitive distribution for illustration 

Adrian Secord, Wolfgang Heidrich, Lisa Streit

July 2002 **Proceedings of the 13th Eurographics workshop on Rendering EGRW '02**

Publisher: Eurographics Association

Full text available:  pdf(1.64 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index](#)

13:18

In this paper we present a high-quality, image-space approach to illustration that preserves continuous tone by probabilistically distributing primitives while maintaining interactive rates. Our method allows for frame-to-frame coherence by matching movements of primitives with changes in the input image. It can be used to create a variety of drawing styles by varying the primitive type or direction. We show that our approach is able to both preserve tone and (depending on the drawing style) hig ...

11 A polygonal approximation to direct scalar volume rendering 

 Peter Shirley, Allan Tuchman

November 1990 **ACM SIGGRAPH Computer Graphics, Proceedings of the 1990 workshop on Volume visualization VVS '90**, Volume 24 Issue 5

Publisher: ACM Press

Full text available:  pdf(635.28 KB) Additional Information: [full citation](#), [abstract](#), [citations](#), [index terms](#)

One method of directly rendering a three-dimensional volume of scalar data is to project each cell in a volume onto the screen. Rasterizing a volume cell is more complex than rasterizing a polygon. A method is presented that approximates tetrahedral volume cells with hardware renderable transparent triangles. This method produces results which are visually similar to more exact methods for soft volume rendering, but is faster and has smaller memory requirements. The method is best suited for d ...

12 Three-dimensional object recognition 

 Paul J. Besl, Ramesh C. Jain

March 1985 **ACM Computing Surveys (CSUR)**, Volume 17 Issue 1

Publisher: ACM Press

Full text available:  pdf(7.70 MB) Additional Information: [citation](#), [abstract](#), [references](#), [citations](#), [index](#)
[terms](#), [review](#)

A general-purpose computer vision system must be capable of recognizing three-dimensional (3-D) objects. This paper proposes a precise definition of the 3-D object recognition problem, discusses basic concepts associated with this problem, and reviews the relevant literature. Because range images (or depth maps) are often used as sensor input instead of intensity images, techniques for obtaining, processing, and characterizing range data are also surveyed.

13 Ray tracing complex models containing surface tessellations

 John M. Snyder, Alan H. Barr
August 1987 **ACM SIGGRAPH Computer Graphics, Proceedings of the 14th annual conference on Computer graphics and interactive techniques SIGGRAPH '87**, Volume 21 Issue 4

Publisher: ACM Press.

Full text available:  pdf(3.23 MB) Additional Information: [citation](#), [abstract](#), [references](#), [citations](#), [index](#)
[terms](#)

An approach to ray tracing complex models containing mathematically defined surfaces is presented. Parametric and implicit surfaces, and boolean combinations of these, are first tessellated into triangles. The resulting triangles from many such surfaces are organized in a hierarchy of lists and 3D grids, allowing efficient calculation of ray/model intersections. The technique has been used to ray trace models containing billions of triangles and surfaces never before ray traced. The organizing sc ...

14 Session P14: biomedical applications: Variational classification for visualization of 3D ultrasound data

Raanan Fattal, Dani Lischinski
October 2001 **Proceedings of the conference on Visualization '01 VIS '01**

Publisher: IEEE Computer Society

Full text available:  pdf(992.07 KB) Additional Information: [citation](#), [abstract](#), [references](#), [index](#)
 Publisher Site

We present a new technique for visualizing surfaces from 3D ultrasound data. 3D ultrasound datasets are typically fuzzy, contain a substantial amount of noise and speckle, and suffer from several other problems that make extraction of continuous and smooth surfaces extremely difficult. We propose a novel opacity classification algorithm for 3D ultrasound datasets, based on the variational principle. More specifically, we compute a volumetric opacity function that optimally subsumes a set of sim ...

Keywords: 3D ultrasound, classification, isosurface extraction, opacity function, splatting, the variational principle, volume rendering

15 Video toonification

 Jue Wang, Yingqiong Xu, Heung-Yeung Shum, Michael F. Cohen
August 2004 **ACM Transactions on Graphics (SIGGRAPH), ACM SIGGRAPH 2004 Papers**
SIGGRAPH '04, Volume 23 Issue 3

Publisher: ACM Press

Full text available:  pdf(1.12 MB) Additional Information: [citation](#), [abstract](#), [references](#), [citations](#)
[index](#), [19:44 \(4:4\)](#)

We describe a system for transforming an input video into a highly abstracted, spatio-temporal, coherent cartoon animation with a range of styles. To achieve this, we treat video as a space-time volume of image data. We have developed an anisotropic kernel mean shift technique to segment the video data into contiguous volumes. These provide a

simple cartoon style in themselves, but more importantly provide the capability to semi-automatically rotoscope semantically meaningful regions. In our sys ...

16 Model-based object recognition in dense-range images—a review



Farshid Arman, J. K. Aggarwal

March 1993 ACM Computing Surveys (CSUR), Volume 25 Issue 1

Publisher: ACM Press

Full text available: [pdf\(3.42 MB\)](#)

Additional Information: [citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The goal in computer vision systems is to analyze data collected from the environment and derive an interpretation to complete a specified task. Vision system tasks may be divided into data acquisition, low-level processing, representation, model construction, and matching subtasks. This paper presents a comprehensive survey of model-based vision systems using dense-range images. A comprehensive survey of the recent publications in each subtask pertaining to dense-range image object recogni ...

Keyword : 3D object recognition, 3D representations, CAD-based vision, dense-range images, image understanding

17 Volume rendering of 3D scalar and vector fields



R. Crawfis, N. Max, B. Becker, B. Cabral

December 1993 Proceedings of the 1993 ACM/IEEE conference on Supercomputing Supercomputing '93

Publisher: ACM Press

Full text available: [pdf\(2.06 MB\)](#)

Additional Information: [citation](#), [abstract](#), [references](#), [index terms](#)

18 Computational photography: The trilateral filter for high-contrast images and meshes



Prasun Choudhury, Jack Tumblin

July 2005 ACM SIGGRAPH 2005 Courses SIGGRAPH '05

Publisher: ACM Press

Full text available: [pdf\(1.03 MB\)](#)

Additional Information: [citation](#), [abstract](#), [references](#), [index terms](#)

We present a new, single-pass non-linear filter for edge-preserving smoothing and visual detail removal for N dimensional signals in computer graphics, image processing and computer vision applications. Built from two modified forms of Tomasi and Manduchi's bilateral filter, the new "trilateral" filter smooths signals towards a sharply-bounded, piecewise-linear approximation. Unlike bilateral filters or anisotropic diffusion methods that smooth towards piecewise constant solutions, the tr ...

19 Cloth and fibers: The trilateral filter for high-contrast images and meshes



Prasun Choudhury, Jack Tumblin

June 2003 Proceedings of the 14th Eurographics workshop on Rendering EGRW '03

Publisher: Eurographics Association

Full text available: [pdf\(2.10 MB\)](#)

Additional Information: [citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

We present a new, single-pass non-linear filter for edge-preserving smoothing and visual detail removal for N dimensional signals in computer graphics, image processing and computer vision applications. Built from two modified forms of Tomasi and Manduchi's bilateral filter, the new "trilateral" filter smooths signals towards a sharply-bounded, piecewise-linear approximation. Unlike bilateral filters or anisotropic diffusion methods that smooth towards piecewise constant solutions, the tr ...

20 Illustrating smooth surfaces

 Aaron Hertzmann, Denis Zorin

July 2000 **Proceedings of the 27th annual conference on Computer graphics and interactive techniques SIGGRAPH '00**

Publisher: ACM Press/Addison-Wesley Publishing

Full text available: [pdf\(7.27 MB\)](#) Additional Information, full citation, abstract, citations, index terms

We present a new set of algorithms for line-based rendering of smooth surfaces. We introduce an efficient, deterministic algorithm for finding silhouettes based on geometric duality, and an algorithm for segmenting the constant visibility. These methods can be used in software. We present an automatic method for surface silhouette. We demonstrate these algorithms with a drawing s ...

for finding silhouettes based on geometric duality, and an algorithm for segmenting the constant visibility. These methods can be used in software. We present an automatic method for surface silhouette. We demonstrate these algorithms with a drawing s ...

Keywords: direction fields, hatching, non-polygonal illustration, silhouettes

realistic rendering, pen-and-ink

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Terms used

[overlap](#) [intensities](#) [mesh](#) [vertex](#) [equation](#) [polygon](#) [primitive](#)

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Result page: 1 2 3 4 [next](#)Relevance scale **1 Collision detection and proximity queries** Sunil Hadap, Dave Eberle, Pascal Volino, Ming C. Lin, Stephane Redon, Christer Ericson
August 2004 [ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04](#)

Publisher: ACM Press

Full text available:  [pdf\(11.22 MB\)](#) Additional Information: [full citation](#), [abstract](#)

This course will primarily cover widely accepted and proved methodologies in collision detection. In addition more advanced or recent topics such as continuous collision detection, ADFs, and using graphics hardware will be introduced. When appropriate the methodologies discussed will be tied to familiar applications such as rigid body and cloth simulation, and will be compared. The course is a good overview for those developing applications in physically based modeling, VR, haptics, and robotics.

2 Projection-based advanced graphics and vision techniques Ramesh Raskar
August 2004 [ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04](#)

Publisher: ACM Press

Full text available:  [pdf\(6.53 MB\)](#) Additional Information: [full citation](#)**3 The elements of nature: interactive and real-time techniques** Oliver Deussen, David S. Ebert, Ron Fedkiw, F. K. Musgrave, Przemyslaw Prusinkiewicz, Doug Ross, Jos Stam, Jerry Tessendorff
August 2004 [ACM SIGGRAPH 2004 Course Notes SIGGRAPH '04](#)

Publisher: ACM Press

Full text available:  [pdf\(17.65 MB\)](#) Additional Information: [full citation](#), [abstract](#)

This unique course on simulating natural phenomena will cover the latest research and production techniques for simulating most of the elements of nature. The presenters will give production, interactive simulation, and research perspectives on the task of photorealistic modeling, rendering, and animation of natural phenomena. The course offers a nice balance of the latest interactive graphics hardware-based techniques and the latest physics-based simulation techni ...

4**Geometric modeling based on triangle meshes and geometric modeling based on**

triangle : thes

Mario Bösch
July 2006

Publisher: APress

Full text available: [pdf\(24.22 MB\)](#) Additional Information, [citation](#), [references](#)

5 Spatial : augmented reality: Modern approach to augmented reality

Oliver Birke, Ramesh Raskar
July 2006

Publisher: APress

Full text available: [pdf\(2.45 MB\)](#) Additional Information, [citation](#), [abstract](#), [references](#)

This tutorial discusses the Spatial Augmented Reality (SAR) concept, its advantages and disadvantages, and its limitations. It will present examples of state-of-the-art display configurations, appropriate rendering techniques, details about hardware and software implementations, and areas of application. Specifically, it will describe techniques for optical projection using single/multiple spatially aligned mirror-beam splitters, image sources, transparent screens and optical holograms. Furthermore, ...

6 Spatial : augmented reality: a modern approach to augmented reality: Modern

approach
Oliver Birke, Ramesh Raskar
July 2005

Publisher: APress

Full text available: [pdf\(8.93 MB\)](#) Additional Information, [citation](#), [abstract](#), [references](#), [index terms](#)

This tutorial discusses the Spatial Augmented Reality (SAR) concept, its advantages and disadvantages, and its limitations. It will present examples of state-of-the-art display configurations, appropriate rendering techniques, details about hardware and software implementations, and areas of application. Specifically, it will describe techniques for optical projection using single/multiple spatially aligned mirror-beam splitters, image sources, transparent screens and optical holograms. Furthermore, ...

7 Exploiting high-fidelity virtual environments: Exploiting perception in virtual environments

Additional page
Mashhud Ali, Alan G. Chalmers, Ming C. Lin, Miguel A. Otaduy, Diego Gutierrez
July 2005

Publisher: APress

Full text available: [pdf\(5.07 MB\)](#) Additional Information, [citation](#), [appendices and supplements](#), [index](#), [references](#), [cited by](#)

The course is designed to provide an introduction to the issues that must be considered when building high-fidelity 3D environments. The course will introduce the principles of human perception and guide the development of algorithms and techniques for collaboration, graphical, auditory, and haptic rendering. We aim to show how perception is exploited to achieve collaboration in high fidelity environments within the constraints of available finite computational resources. In this course we ...

Key terms: collaborative environments, haptics, high-fidelity rendering, human-computer interaction, multi-user, networked applications, perception, virtual reality

8 Point-based graphics
Marc Alexa, Michael Zwicker, August 2
Published by Acm Press
Full text: [pdf\(8.94 MB\)](#) Additional Information: [location](#), [abstract](#), [citations](#)
This course introduces points as a powerful and versatile graphics primitive. Speakers will present the latest concepts for the acquisition, representation, modeling, processing, and rendering of point sampled geometry along with applications and research directions. We will also introduce algorithms and discuss current problems and limitations, covering important point based graphics.

9 Real-time volume graphics
Klaus E. Weiskopf, August 2
Published by Acm Press
Full text: [pdf\(7.03 MB\)](#) Additional Information: [location](#), [abstract](#)
The rapid evolution of programmable graphics hardware has made high-quality volume graphics a reality. In addition to the traditional application of rendering data in scientific visualization, the interest in applying these techniques for rendering of atmospheric phenomena and participating media such as fire, smoke, and water is growing rapidly. This course covers both applications in scientific visualization, e.g., medical volume data, and real-time rendering, ...

10 Level set methods for computer graphics
David E. Keyes, August 2
Published by Acm Press
Full text: [pdf\(17.07 MB\)](#) Additional Information: [location](#), [abstract](#), [citations](#)
Level set methods, an important class of partial differential equation (PDE) methods, define surfaces implicitly as the level set (i.e., surface) of a sampled, evolving nD function. The course begins with preparatory material that introduces the concept of using differential equations to solve problems in computer graphics, geometric modeling, and vision. This will include the structure and behavior of several different types of differential equations, e.g. the level set equation, ...

11 Real-time rendering
Marc C. Randell, August 2
Published by Acm Press
Full text: [pdf\(39 MB\)](#) Additional Information: [location](#), [abstract](#)
Real-time rendering was once seen as a distant dream. When the first version of OpenGL was offered four years ago, real-time rendering was possible, but only with one-card hardware or by combining the effects of tens of hundreds of rendering passes. Most every new computer today has graphics hardware capable of interactively rendering thousands to tens of thousands of instructions. This course has been designed to address today's real-time shading capabilities, ...

12 General purpose computation on graphics hardware
David Luebke, August 2
Published by Acm Press
Full text: [pdf\(10.2 MB\)](#) Additional Information: [location](#), [abstract](#), [citations](#)
General purpose computation on graphics hardware, also known as GPGPU, is a relatively new field that has emerged in the last few years. It is based on the observation that the graphics hardware in today's high-end graphics cards is capable of performing general purpose computation, ...

12 **Woo** **on Lefohn**
August 17, 2004
Published by ACM SIGGRAPH 2004 Course Notes
Full text: [pdf\(63.03 MB\)](#) Additional Information: [illustration](#), [abstract](#), [citations](#)

The graphics processor (GPU) on today's computer video cards has evolved into an extremely powerful and flexible processor. The latest graphics architectures provide high memory bandwidth and computational horsepower, with fully programmable pixel processing units that support vertex operations up to full IEEE floating point. High level languages have been created for graphics hardware, making this computational power accessible. Architecturally, GPUs are highly parallel systems ...

13 **State of the graphic standard's planning committee**
Computer Graphics Staff
August 17, 2004
Published by ACM SIGGRAPH Computer Graphics, Volume 13 Issue 3
Full text: [pdf\(15.01 MB\)](#) Additional Information: [illustration](#), [abstract](#), [references](#), [citations](#)

14 **Texture mapping 3D models: from theory to practice**
Frederick Weinhaus, Venkat Devarajan
ACM Computing Surveys (CSUR), Volume 29 Issue 4
Full text: [pdf\(1.93 MB\)](#) Additional Information: [illustration](#), [abstract](#), [references](#), [index terms](#)

Texture mapping has become a popular technique in the computer graphics industry in the last few years because it is an easy way to achieve a high degree of realism in computer-generated imagery with very little effort. Over the last decade, texture-mapping techniques have advanced to the point where it is possible to generate real-time simulations of real-world scenes using texture mapping every object surface with photographic images of those real-world areas. The technique ...

Keywords: anti-aliasing, height fields, homogeneous coordinates, image perspective projection, image warping, multi-resolution data, perspective projection, polygons, ray tracing, real-time scene generation, rendering, registration, texture mapping, visual simulation, voxels

15 **Sharing 3D data and 3D models**
Thomas A. Huang, Michael Kazhdan
ACM SIGGRAPH 2004 Course Notes
Full text: [pdf\(11.56 MB\)](#) Additional Information: [illustration](#), [abstract](#)

3D data and 3D models are rapidly becoming available in several fields, including CAD, molecular biology, and computer graphics. As the number of 3D models grows, there is an increasing need for computer systems to help people find the ones and discover relationships between them. Unfortunately, traditional search techniques are not always effective for 3D models, especially when queries are metric in nature (e.g., find me objects that fit into this ...)

16 **Creating a 3D group application**
Daniel J. D'Amico, Christophe Hery, Seth Linton, Tom Choi, Stephen Regelous, Douglas Suttler

August 16 **ACM SIGGRAPH 2004 Courses Notes SIGGRAPH '04**
Published by A.M. Press
Full text: [\[pdf, 13.19 MB\]](#) Additional Information: [\[citation, abstract\]](#)

A challenge for special effects in movies is the production of realistic virtual crowds: particle systems with forces, copy and pasting techniques, and methods. The course will explain the different approaches to crowd techniques using attraction and repulsion-based methods. The architecture of MASSIVE tools will be presented including the ...

17 Point rendering on a stream architecture
John F. Hughes, William J. Dally, Ujval J. Kapasi, Scott Rixner, Peter Mattson, Ben Mowery
Proceedings of the ACM SIGGRAPH/EUROGRAPHICS workshop on Graphics hardware HWVG '00
Published by A.M. Press
Full text: [\[pdf, 11.35 KB\]](#) Additional Information: [\[citation, abstract, references, citations, index\]](#)

The programmable stream architecture in polygon rendering provides a powerful way to address the high performance needs of today's complex scenes as well as the flexibility and programmability of the polygon rendering pipeline. We describe how the polygon rendering pipeline maps into stream programs and kernels that operate on and how this mapping is used to implement the polygon rendering pipeline on a programmable stream processor. We compare our results ...

Keywords: OpenGL, SIMD, graphics hardware, multimedia processors, polygon stream architecture, stream processing, streams

18 Video rendering: Video-based rendering
Martin Stoll, Marc Levoy, German Christensen, Wolfgang Matusik, Christian Theobalt
SIGGRAPH 2003 Courses Notes SIGGRAPH '03
Published by A.M. Press
Full text: [\[pdf, 1.15 MB\]](#) Additional Information: [\[citation, abstract, references, citations, index\]](#)

Video-based rendering: Fast, flexible, and drawing for illustration

19 Non-photorealistic rendering: Fast, flexible, and drawing for illustration
Adriano T. F. M. Costa, Wolfgang Heidrich, Lisa S. Collins
Proceedings of the 13th Eurographics workshop on Rendering EGRW '02
Published by Eurographics Association
Full text: [\[pdf, 1.15 MB\]](#) Additional Information: [\[citation, abstract, references, citations, index\]](#)

We present a high-quality, non-photorealistic approach to illustration that preserves tone by probabilistic sampling while maintaining rates. Our method allows for frame-to-frame coherence by matching sets of primitives with changes in the input image. It can be used to create a drawing styles by varying the primitive type or direction. We show that our is able to both preserve tone and (depending on the drawing style) high ...

20 See-through rendering of objects with semi-transparently defined occluders
G. E. Drettakis, R. Klein
Proceedings of the 2003 Eurographics/ACM SIGGRAPH symposium on geometry processing SG '03
Published by Eurographics Association

Full Text: [e:!\[\]\(3cb320bfb3e97fbb26a4ab569cbf6c9e_img.jpg\) \(1.11 MB\)](#) Additional Information: [citation](#), [abstract](#), [references](#), [citations](#), [index](#), [links](#)

In recent years the ease of use and the flexibility in the editing process shifted into focus in many mesh editing methods. In this spirit we present a 3D mesh editing method similar to the simple constrained deformation (scodef) method⁹. We extend this method to the so-called mesh forging paradigm by adding an occluder to the environment. Our method resembles and was in fact motivated by the forging process where an anvil is used to give the manipulated object ...

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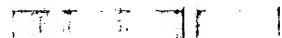
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1 COLD CATHODE FIELD EMITTER FLAT SCREEN DISPLAY

Inventor: GE SHICHAO; YAM LAP MAN; (+2)

Applicant: PIXTECH INC (US)

EC: H01J9/18B; H01J29/02K; (+2)

IPC: **H01J29/02; H01J29/46; H01J29/02** (+2)

Publication info: **WO9715912** - 1997-05-01

2 Cold cathode field emitter flat screen display

Inventor: GE SHICHAO (US); YAM LAP MAN (US); (+2) **Applicant:** PIXTECH INC (US)

EC: H01J9/14; H01J29/02K; (+2)

IPC: **H01J9/14; H01J29/02; H01J29/46** (+8)

Publication info: **US6377002** - 2002-04-23

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